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Curricular Approaches to Transgender Health in Physician Assistant Education

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Abstract

Purpose
According to the Williams Institute, 1.4 million U.S. adults identify as transgender. Many experience health care disparities. Professional organizations call for medical education to improve transgender care, but what curricula are being delivered is unknown. The goal of this study was to conduct the first comprehensive, national survey of transgender health care curricula in physician assistant (PA) education.

Method
The authors sent a questionnaire to program directors (PDs) at all 236 U.S. PA programs in June 2018. They categorized programs as those that currently deliver at least 1 hour of transgender health content and those who do not (Teaching/Not Teaching). They examined differences between Teaching and Not Teaching programs using chi-square tests, and they evaluated comments for themes.

Results
The response rate was 100%. Of the 236 programs, 202 (85.6%) teach transgender content and 34 (14.4%) do not. According to PDs, most transgender content was delivered in medical interviewing (44.1%) or women's health (31.4%) and the most common transgender health topics included differentiating between sex and gender and between behavior and identity (78.8%), followed by health disparities (77.5%) and barriers to care (75.0%). PDs most commonly cited a lack of time (51.3%) and faculty knowledge (35.6%) as barriers for teaching transgender health topics. Half of the PDs (50.4%) ranked transgender health as very or extremely important. The authors detected statistically significant differences between Teaching and Not Teaching programs based on geographic region ($P = .01$), perceived importance ($P \leq .001$), and presence of knowledgeable faculty ($P = .01$). Presence of knowledgeable faculty was significantly associated with perceived importance ($P = .01$).

Conclusions
This is the first comprehensive, nationwide survey of transgender health education in U.S. PA programs. A key finding is that the presence of expert faculty is significantly associated with delivery and perceived importance of transgender health curricula.

A 2016 report published by The Williams Institute estimates that 1.4 million adults in the United States, or 0.6%, identify as transgender.[1] Research indicates that transgender persons, those who do not identify as the gender they were assigned at birth, suffer disproportionately compared with the general population across many measures, including exposure to violence, health outcomes, discrimination, stigma, poverty, access to health insurance, and access to health care.[2] In a 2011 report of nearly 7,000 transgender people, 28% reported experiencing verbal harassment in a health care setting, 2% reported physical assault, and 19% had been refused care.[1] Fifty percent had to teach their provider how to care for them.[3] One of the major barriers to health care for transgender patients is their reluctance to disclose their gender diversity due to potential discrimination in the health care setting.[4] Additionally, the high rate of poverty among members of this population also detrimentally affects their access to care.[4]

Provider barriers to delivering quality health care to transgender patients are complex and multifactorial, involving limited provider knowledge and education—compounded by a dearth of evidenced-based research on care for this population.[4] The extant literature lacks high-quality studies,[5] and there are limited long-term data on gender-affirming treatments, such as surgery and hormone therapy.[5] Thus, most current standards of care are based on expert panel recommendations.[4] Further, the recommendations around accepted terminology in research[5] and the standards used in laboratory references are also inconsistent.[4,5]

Medical education has only recently addressed transgender health in its curricula, and the current approach to educating health care providers across the country is not completely understood.[3,6–10] Existing studies of medical students demonstrate that the majority report low comfort and knowledge in this area of medicine and would like increased content on transgender health.[7] A 2011 study of lesbian, gay, bisexual, and transgender (LGBT) health in medical school curricula[8] demonstrated a median of 5 hours of medical school curricula spent on all LGBT health topics, and did not quantify the amount spent on transgender-specific content. Consistent with medical schools, only limited data exist regarding the curricular approach to transgender health in physician assistant (PA) programs.[11,12] A 2015

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study that focused on general sexual health education in U.S. PA programs reported that 33%–41% of PA programs did not cover transgender health.[12] The authors of this study noted that medical transition and surgical affirming procedures were covered the least.[12] They also noted that 11% of U.S. PA programs considered general LGBT topics to be either "not at all" or "slightly important" for inclusion in the curriculum and that 38% of reporting programs felt that their current delivery covered the topic either "not at all" or only "slightly well."[12]

PAs are health care providers who are efficiently trained in the medical model; the average duration of training programs is just 27 months.[13] PAs practice in primary care at high rates,[13,14] and providing gender-affirming care, including hormone therapy, is well within the scope of primary care.[15] In addition, PAs can move among specialties,[14] (e.g., from endocrinology to psychiatry to primary care), transferring transgender health care knowledge across medical silos. Lastly, PAs expand access in low-resource and medically underserved areas,[16] which is important since, as mentioned, transgender persons are more likely to be medically underserved and have poor health care access.[2] Delivering high-quality, evidence-based transgender health education to PA trainees could quickly improve access to high-quality care for transgender patients.

The goals of this study were as follows: (1) To assess how and to what extent transgender health is delivered in the curricula at PA programs in the United States, (2) to assess the perceived value and barriers to implementation, and (3) to evaluate the relationship between program characteristics and curriculum implementation.

Method

Since no validated survey tool was available for the assessment we planned, we developed—with the help of content and education research experts—a survey instrument, based on existing literature.[6,8,9,12,17–19] We piloted it amongst 20 physician educators and medical residency program directors (PDs) across the United States. Then, based on their feedback, we revised it in collaboration with Physician Assistant Education Association (PAEA) researchers. Survey items assessed the number of didactic hours dedicated to transgender health, the method of content delivery, the method of student assessment, the presence of faculty knowledgeable about transgender health, barriers to providing content, and the perceived importance of the topic. We also asked responding program representatives, often PDs, to self-assess the quality of the transgender curriculum delivered in their program. Notably, for 4 questions, responding PDs could add their own comments to elucidate the choice "other" (Supplemental Digital Appendix 1 at http://links.lww.com/ACADMED/A953). The PAEA Support to Advance Research (STAR) Program selected the survey for inclusion in the 2018 PAEA program survey.[20] The STAR Program is competitive, and PAEA accepts only one proposal per year to be included in the program survey, which is sent annually to all PAEA member programs (N = 236 in 2018[21]). This survey, used to collect information about students, faculty, program structure, and geographic region, is mandatory for all PAEA member programs. The institutional review boards (IRBs) of the University of Utah and Johns Hopkins University granted this study exempt status (University of Utah IRB 00104689, Johns Hopkins University IRB 00007707).

PAEA sent the program survey to all member programs in June 2018. The survey, which reflects the 2017–2018 academic year, was open for 5 months. Nonresponder programs were contacted through automatically generated emails and via follow-up telephone calls. We received deidentified program data, student demographic data, and survey question results in December 2018. We were blinded to all identifying data.

We initially examined the data using descriptive statistics and histograms. We displayed the following program characteristics using frequencies and proportions:

- type of institution (i.e., public; public/private hybrid; military; private, for-profit; private, nonprofit),
- association with an academic health center status (yes or no),
- geographic region, and
- public versus private status.

We categorized programs by those that currently deliver at least 1 hour of curricular content around transgender health (Teaching) and those that do not (Not Teaching). We selected 1 hour of content delivery as the cutoff for Teaching, as more than an hour suggests that the topic was independently addressed rather than mentioned in a single slide or as part of a different topic area. We compared differences in survey item responses and program characteristics by Teaching versus Not Teaching status using the chi-square test and, when cell sizes necessitated, the Fisher's exact test. We evaluated the qualitative comments, solicited from question stems when the responder selected "Other, Please specify," using a grounded theory approach. For all inferential statistics, we set the alpha value a priori at 0.05. To ensure that results were not driven by the selection of the cut-point for Not Teaching, we performed a sensitivity analysis using more than 3 hours as a Teaching cutoff. We analyzed quantitative data using SAS software (version 9.4 of the SAS System for Unix. SAS Institute Inc., Cary, North Carolina).

Results

A representative from all 236 programs responded, so the response rate for all survey questions was 100%. By region, 78 programs (33.1%) were located in the South, 75 (31.8%) in the Northeast, 53 (22.5%) in the Midwest, and 30 (12.7%) in the West. The majority of programs (147, 62.3%) were private, nonprofit institutions. Others were public (71, 30.1%); private, for-profit (15, 6.4%); public–private hybrid (2, 0.9%); and military (1, 0.4%). Most programs (176, 70.8%) were not housed in an academic health center (Table 1).

Curriculum delivery

A majority of programs (202, 85.6%), reported teaching at least 1 hour of transgender curricular content, while the remaining 34 (14.4%) reported teaching less than 1 hour. Of these 34, 10 programs (4.2% of the total) reported teaching no transgender content (Figure 1). PDs whose programs deliver at least 1 hour of didactic content reported several delivery methods. Most PDs reported that transgender health content is delivered as "part of a lecture or course" (177, 75.0%); others reported that content is delivered through a stand-alone lecture (85, 36.0%), in clinic rotations (40, 16.9%),

Table 1
2018 United States Physician Assistant Program Characteristics

Characteristic	No. of programs (%[a] of 236)
Region	
Midwest	53 (22.5)
Northeast	75 (31.8)
South	78 (33.1)
West	30 (12.7)
Description of institution	
Public	71 (30.1)
Private, nonprofit	147 (62.3)
Private, for-profit	15 (6.4)
Public/private hybrid	2 (0.9)
Military	1 (0.4)
Academic health center affiliation	
No	167 (70.8)
Yes	69 (29.2)

[a]Total percent may not equal 100 due to rounding.

and as a stand-alone course dedicated to transgender health (1, 0.4%).

PDs reported that content is most often included in the following courses:

1. medical interviewing (104, 44.1%),
2. women's health or obstetrics–gynecology (74, 31.4%),
3. problem-based learning (42, 17.8%),
4. endocrinology (26, 11.0%),
5. urology (22, 9.3%),
6. callback sessions during clinical training (22, 9.3%),
7. infectious disease (15, 6.4%), and
8. objective structured clinical examinations (OSCEs) or simulation (14, 5.9%).

See also Figure 2.

A large proportion of PDs (102, 43.2%) indicated that content was delivered in "other" courses. A thematic analysis of these responses identified that 26 programs (11.0%) cover the content in behavioral or mental health courses, and 21 (8.9%) present the content in a course dedicated either to cultural competency, LGBT health, and health care disparities or to diversity and equality.

Curricular content and assessment

The most common topics covered include the following:

- differentiating between sex and gender and between behavior and identity (186 programs, 78.8%),
- health disparities (183, 77.5%),
- health access/barriers to care (177, 75.0%),
- mental health (158, 66.9%), and
- preferred names and pronouns (153, 64.8%).

Fewer than half of the PDs reported that their programs are teaching about issues affecting transgender adolescents or children (116, 49.2%), hormone treatment (95, 40.3%), or surgical treatment options (81, 34.3%).

Only 115 programs (48.7%) reported assessing student knowledge and skills about transgender health.

Faculty characteristics and program perceptions

Just over half of the PDs (132, 55.9%) reported that their programs have at least one faculty member knowledgeable in the area of transgender health, while 39 (16.5%) reported their programs do not and 65 (27.5%) were not sure. PDs reported that the greatest reported barrier to providing education about transgender health was a lack of time (121, 51.3%), followed by a lack of faculty knowledge (84, 35.6%), a lack of faculty comfort (38, 16.1%), and a lack of clarity on where in the curriculum to include these topics (35, 14.8%). A small minority of programs (7, 3.0%) reported that their institutional culture was not supportive or that they did not consider transgender health important.

In describing their overall coverage of transgender health issues, 13 PDs (5.5%) ranked their coverage as "very poor" and 58 (24.6%) ranked it as "poor." Only 32 PDs (13.6%) described the coverage at their programs as "good" and even fewer (20, 8.5%) described it as "very good." The remainder of the PDs, just under half (113; 47.9%) described their overall coverage of

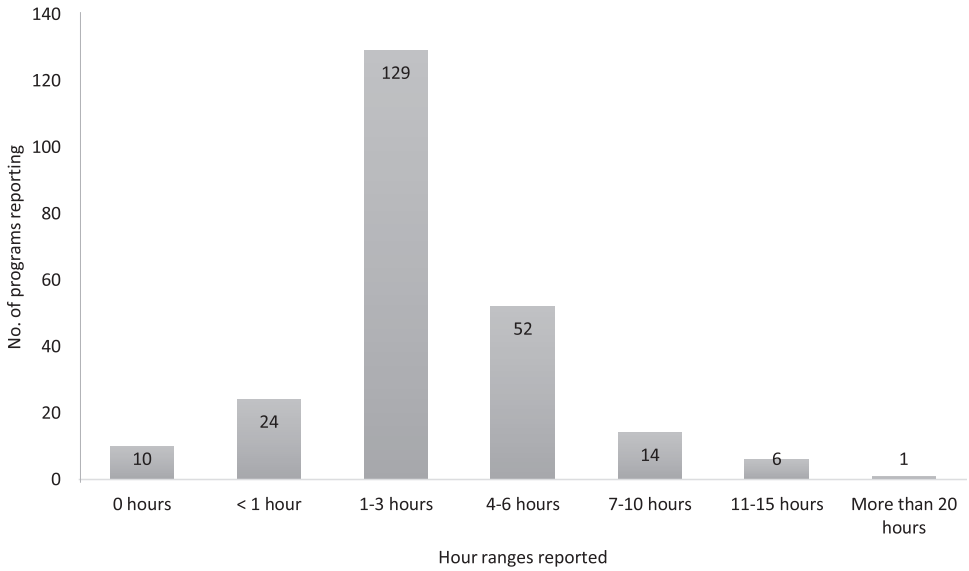

Figure 1 Distribution of didactic teaching hours in transgender health reported by 236 U.S. physician assistant programs on a 2018 survey. The survey garnered a 100% response rate.

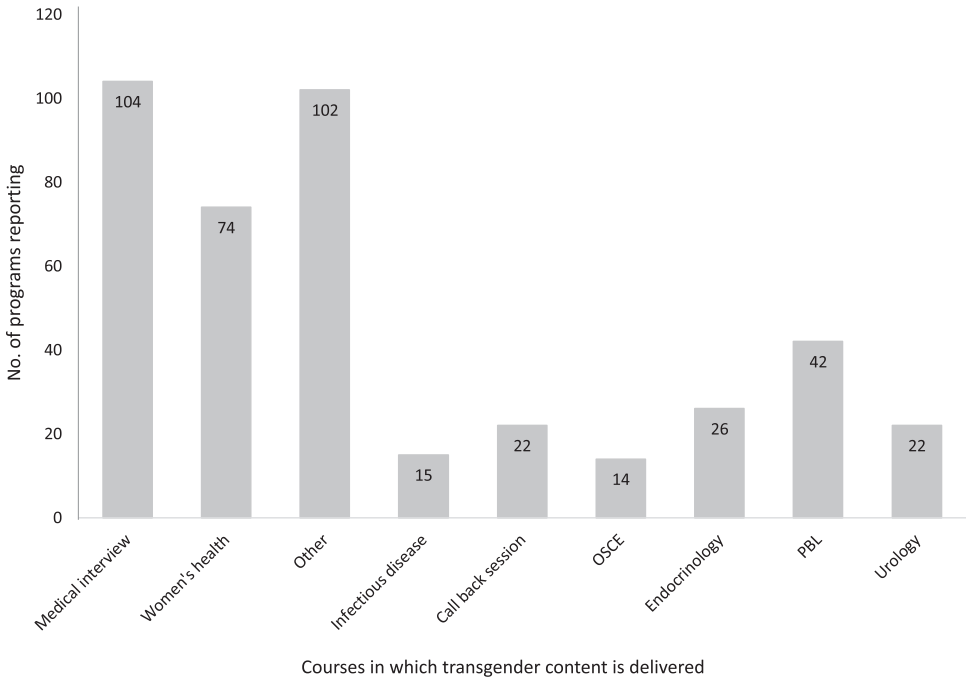

Figure 2 Courses in which transgender content is delivered in 236 U.S. physician assistant programs, according to the results of a 2018 survey. The survey garnered a 100% response rate. A learning callback session is the required visit students make to campus during their clinical year. Abbreviations: OSCE; objective structured clinical examination; PBL, problem-based learning.

transgender health issues as "acceptable." When characterizing the importance of including transgender health topics, over 50% of PDs (119) identified it as "very" or "extremely" important.

Independent variable analysis

The proportion of programs that do and do not teach transgender health varied geographically: 34% of PDs who reported that their programs teach this content were in the Northeast, compared with 34.7% in the South, 12.4% in the West, and 18.8% in the Midwest (χ^2 [3, N = 236] = 12.01; $P = .01$). The proportion of programs that teach transgender health also varied by program type: 62.4% of programs teaching this content were in private, nonprofit institutions, 29.7% in public institutions, 6.4% in private, for-profit institutions, 1% in public–private hybrid, and 0.5% in military institutions (Fisher's exact test, $P = .03$).

Additionally, PDs who reported perceiving this content as important were more likely to teach about transgender health issues (χ^2 [5, N = 236] = 31.65; $P < .001$) as were programs with at least one faculty member knowledgeable about transgender health (χ^2 [2, N = 236] = 8.55; $P = .01$). We noted that how PDs ranked their overall coverage of transgender health was significantly associated with whether or not they teach this content. Among the 202 Teaching PA programs, we noted the following: 95.0% of PDs (19 of 20) who considered their overall coverage "very good" also indicated that they provided teaching, compared with 93.8% (30/32) who described their coverage as "good," 93.8% (106/113) who described their coverage as "acceptable," 72.4% (42/58) who described their coverage as "poor," and 38.5% (5/13) who described their coverage as "very poor" (χ^2 [4, N = 236] = 40.93; $P < .001$). Among the 34 Not Teaching PA programs, 24 PDs (70.6%) described the coverage of transgender health at their programs as "poor" or "very poor" coverage. Notably, 20.6% (7/34) of PDs whose programs do not teach transgender health content consider their teaching "acceptable," 5.9% (2/34) consider it "good," and 2.9% (1/34) consider it "very good." We detected no significant variation based on whether or not the program is housed in an academic medical center (χ^2 [1, N = 236] = 0.1470; $P = .70$). See also Table 2.

The results of our sensitivity analysis using an alternate cut-point to define teaching (> 3 hours) did not reveal results that were significantly different from those of our initial statistical analysis.

Discussion

Curricular content and analysis

According to our survey respondents, 85.6% of PA programs in the United States (n = 202) provide at least 1 hour of transgender curricular content. This is an increase from the proportion reported in a 2014 study, which indicated that of 181 PA programs, between 59% and 67% covered transgender health topics to some degree.[12] This expansion could reflect increased cultural awareness of transgender persons, increased demands by students, increased faculty awareness, and/or a reaction to the call to improve the care of sex and gender minorities that has been solicited by the Association of American Medical Colleges (AAMC) and other groups.[10,11,22] Our respondents indicated that the most commonly covered topics include clarification of terms (e.g., "gender," "sex," and "identity"), followed by health disparities/health access issues and mental health topics. Additionally, sexual identity and behavior are often covered in medical interviewing or sexual health curricula. Nearly half of PDs, 104 (44.1%), reported that their programs delivered transgender health content in medical interviewing courses, while just a few (26; 11.0%) reported teaching transgender health

Table 2

Characteristics, Perceived Value of Transgender Health Content in the Curriculum, and Availability of Faculty With Expertise in Transgender Health Among 236 U.S. Physician Assistant (PA) Programs

Characteristic	All PA programs, No. (% of 236)	PA programs that do not teach,[a] No. (% of 34)	PA programs that teach,[b] No. (% of 202)	*P* value[c]
Region				*.01*
Midwest	53 (22.5)	15 (44.1)	38 (18.8)	
Northeast	75 (31.8)	6 (17.9)	69 (34.2)	
South	78 (33.1)	8 (25.5)	70 (34.7)	
West	30 (12.7)	5 (14.7)	25 (12.4)	
Institutional description				*.03*
Public	71 (30.1)	11 (32.4)	60 (29.7)	
Private, nonprofit	147 (62.3)	21 (61.8)	126 (62.4)	
Private, for-profit	15 (6.4)	2 (5.9)	13 (6.4)	
Public/private hybrid	2 (0.9)	0	2 (1.0)	
Military	1 (0.4)	0	1 (0.5)	
Responding representative's view on the importance for the program of including transgender health content in the curriculum				*< .001*
Not at all important	2 (0.9)	2 (5.9)	0	
Slightly important	32 (13.6)	12 (35.3)	20 (9.9)	
Moderately important	83 (36.2)	11 (32.4)	72 (35.6)	
Very important	80 (33.9)	8 (23.5)	72 (35.6)	
Extremely important	39 (16.5)	1 (2.9)	38 (18.8)	
At least 1 faculty member knowledgeable in transgender health				*.01*
Yes	132 (55.9)	12 (35.3)	120 (59.4)	
No	39 (16.5)	16 (47.1)	49 (24.3)	
Not sure	65 (27.5)	6 (17.6)	33 (16.3)	
Academic health center affiliation				.70
Yes	69 (29.2)	9 (26.5)	60 (29.7)	
No	167 (70.8)	25 (73.5)	142 (70.3)	

[a]The authors designated programs that do not teach (34 or 14.4% of all 236 programs) as those that provided less than 1 hour of instruction.
[b]The authors designated programs that teach (202 or 85.6% of all 236 programs) as those that provided a minimum of 1 hour of instruction.
[c]The authors considered the italicized *P* values statistically significant at $P \leq .05$.

content via endocrinology. Together, these findings indicate that much transgender health information covers referring to patients by their preferred names and pronouns, which is a patient interaction skill—rather than managing hormone therapy, which is a medical skill. This emphasis may reflect that programs do not have faculty with experience in the areas of hormone therapy and surgical treatments for patients. Consistent with prior research,[12] we found that hormone therapy and surgical treatment options were among the least covered topics.

Program perceptions and attitudes

Although 85.6% of programs, provide teaching about transgender health, only 20.8% of these PDs (42/202) consider their coverage "good" or "very good" and 35% (71/202) rank their program's coverage as "poor" or "very poor." These findings suggest that even in programs where a transgender health curriculum has been incorporated, there is a gap in the perceived quality of the content being delivered. Unsurprisingly, given that 85.6% of programs reported delivering transgender health content, the same proportion of PDs (86%) reported that they felt it was "moderately important," "very important," or "extremely important." It is concerning that among the 34 programs that do not cover transgender health at all, about a fifth of the PDs (7, 20.6%) consider their coverage "acceptable" (2, 5.9%), "good" (2, 5.9%), or "very good" (1, 2.9%) This seeming complacency may reflect that programs do not think this content is valuable.[22]

Program-level strengths and opportunities

We are reassured that only 7 programs reported institutional culture as a barrier. Further, the finding that the most frequently reported barriers were logistic in nature (e.g., lack of time and faculty knowledge) may offer hope since these issues may be easier to address than culture or institutional climate. Although curricular hours may be difficult to add in a concentrated professional training program, several studies show effective increases in knowledge with the addition of just 1 or 2 hours of lecture or patient panels.[23–25] Other experts recommend integration of transgender health topics into existing curricula.[26] It is also promising that 86% of programs are teaching transgender health content and

rate it as moderately, very, or extremely important.

Our study identified opportunities for improvement. While programs may be providing content about adult transgender populations, our results indicate a wider gap in teaching about children and adolescents: less than half of programs (49.2%, 116) cover issues related to these age groups. This paucity is particularly concerning given not only the findings that 30%–51% of transgender and gender nonbinary adolescents report a lifetime suicide attempt, compared with 10%–18% of cisgender youth (those whose gender identity aligns with their sex as assigned at birth),[27] but also the fact that suicide is the second leading cause of death amongst young adults and adolescents between the ages of 10 and 34 in the United States.[27] All providers must be aware of the increased risk of suicide and other medical and mental health issues in transgender youth. The fact that only half of PA programs in the United States reported having a faculty member knowledgeable about transgender health is also of concern, as faculty expertise is highly associated with whether the content is taught, as well as with the perceived importance of transgender health content at the program level. This finding suggests curricular vulnerability, that is, a program risks losing transgender health curricular content if a key faculty member leaves the institution. We also identified significant variability in curriculum availability by geographic region. Although this likely reflects cultural differences such as the social progressivism found in urban centers, it is important that PA students irrespective of geographical location are equally prepared to deliver care.

Study strengths and weaknesses

To the best of our knowledge, this study is the first to provide a comprehensive, national assessment of transgender health curricular content in PA education. The perfect response rate and the depth of the answers we received provide reassurance that the results accurately reflect the curricular environment of the United States. We acknowledge that PD factors, including social desirability bias and recall bias, may have influenced the validity of the results. Additionally, we are aware that some PDs may have less detailed knowledge about the curriculum than others in the program more proximal to the student experience, which could introduce error. Additionally, unless students are reporting information specific to transgender health from the clinical year, program faculty may not realize how much (or how little) transgender health content is being delivered on clinical rotations.

Future work

Our results indicate that there is significant heterogeneity in the level and detail of transgender content delivered to PA students in the United States. The AAMC has recommended using the Vanderbilt method for integration of LGBT health topics into medical education.[28,29] Based on our results and the Vanderbilt iterative change model, the next steps in approaching transgender health in PA education include developing a time-efficient curriculum that can be adopted by programs. Programs can complete a self-assessment, identify curricular gaps, and integrate modular curricula and deploy resources to minimize these gaps. The dissemination of a modular, time-efficient curriculum would help programs with an already crowded curriculum. Additionally, such a curriculum might help address the problem of curriculum implementation that is dependent on a small number of knowledgeable faculty. Finally, a modular, efficient curriculum may also improve the consistency of curriculum delivery across different geographic regions.

Removing barriers to care and disparities faced by transgender patients will require a multifaceted approach. By addressing the mental, emotional, and medical needs of these patients in the curriculum, PA educators will have the opportunity to ensure that this vulnerable population is treated by knowledgeable, competent, and compassionate PAs.

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